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PUBLIC HEALTH REPORTS

VOL. 36

NOVEMBER 18, 1921

No. 46

GOOD TEETH.

THE IMPORTANCE OF GOOD TEETH AND THE PREVENTION OF DECAY.¹

Introduction.

Careful examination of many skulls in the National Museum shows clearly the inferiority of the teeth of our present white races as compared with those of ancient times or those of the present who continue to live under primitive conditions. The teeth have responded to the laws of nature just as have other organs and other tissues. The teeth of the present-day Eskimo, for example, are still in the stage of improvement. The Eskimo did not choose the extreme North as his place of abode because of his fondness for the intense cold. Not being of a warlike nature, he gradually worked as far north as man can exist in an endeavor to escape the raids of the more warlike Indian tribes which molested him. Living thus he has had to exist upon the coarsest of foods. Besides this, since his tools and implements have necessarily been few and of simple type, so, naturally, he has often been compelled to use his teeth as both tools and implements. For example, the Eskimo chews his moccasin strings to make them pliable.

As might be expected, therefore, we find in the Eskimo large, strong teeth, and, in addition, we also find large bony structures supporting them; in fact, it is not uncommon to find the bone about the teeth actually thickened or strengthened.

With our white races, whose habits of life are such that little hard usage is demanded of the teeth, we find that the teeth and bony structures have degenerated to a considerable extent, and some persons have assumed that in a comparatively few thousand years our civilized races will no longer possess any dental organs.

A visit to the zoo will convince anyone that throughout the animal kingdom the teeth are found to be closely adapted to the work they have to do. The lion and the tiger eat nothing but meat, which

¹ Revision of the pamphlet "Good Teeth," originally published as "Keep Well Series" No. 13.

requires comparatively little grinding. Hence their long fang teeth and scissorslike molars, which are well adapted for biting and rending. The elephant, on the other hand, eats grass and fruits and tender shoots of trees. So the elephant has big double molars with flat surfaces that rub back and forth like a grinding machine.

Human beings eat both flesh and vegetable foods. Hence we boast of several kinds of teeth, a full set consisting of no less than 12 enameled chisel teeth, 8 sharp tools with 2 points apiece, and 12 solid molars for grinding purposes.

The chisels are the "incisors" and the "canine" or "cuspid" teeth; the double-pointed tools are called "bicuspid"; and the grinders are the "molars" in the back of your mouth. We *cut* our food with the "incisors," "canines," and "bicuspid." The tongue carries it back in the mouth, where it is finally *ground* to fine bits by the "molars."

How Teeth Grow.

When the baby comes into the world it is apparently toothless. Nevertheless, at this time the first teeth are practically completely formed, lying beneath the gums. In fact, under these first teeth there are already the beginnings of the permanent teeth. It needs no lengthy explanations to prove that these teeth can not develop as they should if the body is not supplied with a sufficient amount of the necessary building material. Hence, in the food for the child we should look especially to that part which builds bony structure, of which the tooth is a type. The two most important of these are phosphates and lime; and for the growing child there is no better source of these important elements than milk—mother's milk in infancy and clean cow's milk later. After infancy the diet of every child should include a glass of milk with each meal, and in addition to this there should be other sources of mineral salts, such as fruits, green vegetables, and pure water.

Teething in a healthy child is itself a normal function. It is only when associated with outside disturbances, especially with those due to indigestion or other abnormal conditions, that it may become a source of serious trouble, or when the teeth grow faster than the overlying tissues are absorbed to make room for them. There may then ensue sometimes very serious disturbances from the pressure of the tense and swollen gum on the coming crown underneath, which may, in some cases, be at once relieved by lancing the gum.

Sometime, about the end of the sixth month, if the baby has been thriving normally, the first teeth, usually the low front ones, that were lodged in baby's little jaws when it was born, will appear, and these will be followed at more or less regular intervals by the upper "incisors," then the "back teeth," and lastly usually by the "cuspid,"

or, as they are popularly called, the "stomach" and the "eye" teeth. The following gives about the time when these teeth usually break through the gums:

Two lower front teeth, at 5 to 7 months.

Two upper front teeth, at 6 to 8 months.

Two more lower front teeth, at 7 to 9 months.

Two more upper front teeth, at 8 to 10 months.

Four back (molar) teeth, one on each side of each jaw, at 10 to 14 months.

Four more molar teeth, back of the others, at about 2 years.

Four cuspids ("eye" and "stomach" teeth) at 2 to 2½ years.

Every tooth, as it comes into place, is a milestone that marks another step in the child's development. It will not be until the cutting of all of its first full set of teeth has been completed that the mother may feel at liberty to give the child hard solid food.

From what has already been said concerning the development of the teeth through usage, it is clear that food should be presented in such form that it will require chewing. For this reason the diet should include a certain amount of coarse material designed especially to exercise the teeth. Coarse whole-grained breads, hard tack, baked potatoes eaten with their jackets on, fresh apples; these and similar articles included in the diet will do much to insure good teeth.

THE TEMPORARY (OR "MILK") TEETH.

When the temporary teeth begin to appear, do not get the idea so prevalent, that as they are only "temporary" teeth their preservation is not of much consequence. *It is of supreme consequence.* Their presence in the mouth up to the very moment their successors are ready to take their place is absolutely essential. Their premature loss may be followed by a train of evils—imperfect chewing, poor digestion, irregularities of the second set of teeth, distorted features, and frequently severe suffering from toothache and sleepless nights, which if long continued may induce permanent nervous affections.

Since the care of the first set of teeth has such an important bearing on the child's health, and as these teeth so easily and rapidly become injured when neglected, it must be one of the mother's duties to train the little one to keep its mouth clean. Cleanliness is the key to the proper care of mouth and teeth.

The mother should also get the little one into the habit of going to the dentist frequently for careful examination. This will go far toward preventing decay and will also lead to detection of decay before much harm has been done. Best of all, this will restrict the dentist's services to easy and painless operations, so that the child will have no fear of dentistry.

THE FIRST OR "SIX-YEAR" MOLAR.

The first, or as it is often called, the six-year, molar tooth differs from the others in many points. Not only is this the first of the permanent teeth to make its appearance, but it is the largest of the teeth. It differs from the teeth that have thus far appeared, in that it is not replaced by any other tooth and it does not replace another. However, this tooth is to play a very important part in the mouth, as it must sustain the stress of chewing during the period in which the temporary teeth are being replaced by the permanent teeth, and it also largely determines the position of the permanent teeth which follow, and, therefore, the shape of the jaw and the subsequent appearance of the child.

It is clear that the loss of such a molar or the loss of its use through disease or bad position may have serious results. Appearing, as it does, about the sixth year (giving it its name, "six-year molar"), it takes its place behind the temporary teeth without any interference and is usually mistaken for one of the temporary teeth and is neglected upon the supposition that it will soon be lost or extracted anyway. Be sure, therefore, to watch for the appearance of the "six-year molar," and when it appears, the sixth tooth back counting from the front center, care for it as the most precious gem in the whole set. It is not only the chief grinder at this time, but on its proper location depends the regularity of the second set, as well as the proper development of the features.

OTHER PERMANENT TEETH.

As the second teeth develop and begin to take their place, be especially careful that the first teeth are removed neither too early nor too late. The greatest number of first molars are lost from one or two causes: Either the parent fails to recognize this important tooth as a permanent tooth, or else the fear of the dental chair on the part of the child is such that an early treatment will not be obtained. Normally, these will come up exactly under the teeth they are to supplant, and the roots of the temporary teeth will be gradually absorbed away in front of the advancing permanent teeth, until nothing but the crowns will be left hanging to the gums, to drop out in time of their own accord. Sometimes, however, the permanent tooth may start to emerge either inside or outside the arch. The root of the temporary tooth then fails to be absorbed, and it is an obstruction which must be removed before the second tooth has been forced out of line. Hence, special attention should be given to the teeth at this time. So important is this that the child should be under the repeated supervision of a competent dentist during this entire period.

TIME FOR PERMANENT TEETH.

Four first molars, one on each side of each jaw, 5 to 7 years.

Two lower front teeth, 5 to 7 years.

Two upper front teeth, 6 to 8 years.

Two more upper front teeth and two more lower front teeth, 6 to 8 years.

Four bicuspids, two upper and two lower, 8 to 10 years.

Two "eye" and two "stomach," 9 to 12 years.

Two upper and two lower second molars, 12 to 14 years.

Two upper and two lower third molars, 17 to 25 years.

Care of the Teeth.

In addition to careful attention to proper food in order to build strong and healthy teeth, it is important to make sure that everything is done to prevent decay of the teeth.

Decay of the teeth, spoken of as "dental caries," is caused by the action of germs (bacteria) which lodge upon the less exposed parts of a tooth. As a result of their growth the tooth structure is softened, allowing the succeeding generations of bacteria to penetrate further into the tissues of the tooth.

It will be noticed that decay usually begins either in the little grooves upon the surface used in chewing, but which because of their depth are not well scoured by the food in chewing, or else at the point where one tooth adjoins another. This point also fails to receive the scouring which the more exposed parts of a tooth receives.

In some of the ancient skulls examined it was found that the surfaces which made contact with other teeth in the same jaw were highly polished by the slight individual motion of each tooth in its socket as hard pressure was brought to bear upon it and it was thus rubbed against its neighbor. Therefore, to reduce or prevent decay of the teeth we must work along two lines, (1) to polish all surfaces of the teeth as far as possible, and (2) to reduce the number of bacteria to a minimum.

HOW TO BRUSH THE TEETH.

Smearing the nails with clay or vaseline and endeavoring to cleanse them with an old toothbrush will enable one to form an opinion as to the most effective method of brushing the teeth. Brushing across the nails will leave material along the sides of each nail; brushing up and down the nail will leave the area about the root of the nail uncleansed; but if the brush be used in a rotary manner, the bristles describing a small circle upon the nail, it will be found that all the material will be removed. This motion is to be recommended in brushing one's teeth upon the surface next to the lips and cheek.

For the inner or tongue side, the brush is used as one would use a hoe, the rotary motion being impracticable, but in using this motion the brush should not be pushed back, as this will tend to carry food debris and germs beneath the gum margins, which is the thing most to be avoided. The stroke begins up on the gum and moves in the direction of the main axis of the tooth toward the tip or masticating surface.

For the masticating surface a pulling and pushing motion backward and forward is recommended.

If the gums bleed when the teeth are brushed, some abnormal condition exists, and a competent dentist should at once be consulted. A healthy gum is not easily injured.

A thorough rinsing of the mouth should follow to remove such material as has been dislodged by the previous processes.

CLEANING BETWEEN THE TEETH.

The use of a toothpick is generally to be condemned, as in its use many persons injure the delicate gum tissue which extends in a crescent-shaped mass between the teeth. The preservation of this tissue is very desirable. Dental floss is very valuable in cleansing the surfaces between the teeth, but care should be taken in its use. It should not be held tight between the fingers and forced through between the teeth. Such method allows the floss to snap through with much force, much like the action of a bowstring when released. Thus used dental floss will cause serious injury to the gums. To use floss with benefit draw it carefully through between the teeth with a pulling motion and when it is freely movable draw it carefully back and forth over all the surfaces between the teeth, but do not force it beneath the gum margin.

TOOTH POWDERS, PASTES, AND OTHER DENTIFRICES.

The use of a tooth powder, tooth paste, or other dentifrice is desirable, and there is no particular choice in the selection of one except that it should not be gritty. In this case it would be too hard for continuous use; there are very few, if any, which can be said to be harmful. Ordinary lime water is excellent for cleaning the teeth, for it dissolves the mucous film which often covers the teeth.

FREQUENCY OF BRUSHING THE TEETH.

The teeth should be carefully brushed after each meal. When this is impracticable, the teeth should at least be brushed on arising in the morning and before retiring at night, and a thorough rinsing of the mouth and gargling of the throat should be practiced after each meal.

CLEANING THE GUMS.

The gums may also be cleansed with the brush, but not with as hard usage as when polishing the teeth. Regular brushing of the gums when properly performed will not injure them unless they are diseased. If the gums bleed a dentist should be consulted at once.

REMOVING GREEN STAIN FROM TEETH.

Many persons become discouraged because they are unable by such measures as are here recommended to remove the green stain that sometimes appears about the necks of the teeth. This is especially noticed in the mouths of children and requires professional skill to remove. Once the stain has been carefully removed and the teeth kept well polished it becomes possible to keep the stain from re-appearing. It is purely a vegetable growth and harmless unless allowed to remain too long, in which case the enamel will be found to be softened or "decalcified" beneath it.

Tartar Deposits.

The first sign of tartar is a slight roughness, felt usually on the inside of the lower front teeth. This is caused by deposits from the saliva of a hard, chalky substance. If you find that your teeth have tartar deposits, go immediately to your dentist and have him remove the deposits and give the teeth a thorough cleaning and polishing. The unclean condition of the mouth resulting from tartar deposits is a common cause of "bad breath."

Pyorrhea.

An accumulation of tartar where the teeth join the gums is a contributing cause, but not the only cause, of pyorrhea, or Rigg's disease. The gums become irritated and infected by disease-producing germs, the tissues are broken down, and pus forms. Unless the pyorrhea sufferer is prompt in putting his case in the hands of a dentist the infection continues, rapidly dissolving the soft bone surrounding the teeth, which is called the alveolar process, and destroying the attachment of the soft tissues of the gum to the teeth. In severe cases the teeth become loose and eventually are lost.

There is no dental disease in the treatment of which it is so important for the dentist to have the hearty cooperation and support of the patient as in the treatment of pyorrhea. No medicine has ever been suggested which will cure pyorrhea, and the sooner this fact is recognized by both dentist and patient the better for all concerned. The only known remedy is the thorough removal of all irritating substances of whatever nature and the polishing of all

exposed tooth surfaces by the dentist, and the subsequent proper use of tooth brush, powder, or paste to keep the teeth and gums in a healthy condition.

Patients who have a tendency to pyorrhea should return to their dentist for examination three or four times a year.

Neglected Teeth Cause Serious Illness.

Scientific men all over the world vie with each other in seeking the cause of the various diseases afflicting mankind. In this field of exploration the microscope and the X ray have proved of inestimable value.

It is only recently that the teeth and mouth have been suspected of being a source of a number of serious infectious diseases, especially diseases of the heart, blood, kidney, and joints. The development of X-ray photography, particularly the celluloid film, which has made the making of X-ray pictures of the teeth most convenient, has shown infected roots of teeth to be the cause of many obscure "rheumatic" and other joint troubles.

All modern up-to-date dentists now make use of X-ray pictures whenever they suspect any trouble with the roots of the teeth. Not only the dentist, but the physician as well, has been astonished at what these pictures have revealed to him.

Often they show that pus is present about the neck of the teeth, and that there are pockets extending down toward the roots which hold large quantities of putrid material. The discharge of poison and germs from these hidden abscesses at the roots of the teeth and the consequent absorption from these and other local foci—as from diseased tonsils—show a very strong causative relation, if not the real cause of, many hitherto obscure ill-defined illnesses.

Certainly not all rheumatic and systemic diseases are due to pus around the necks of the teeth, nor to concealed abscesses at their roots, nor yet to tonsillar infections. Yet it is now strongly suspected that such mouth infections may often be the cause, or at least a contributing cause, of many diseases, such as tonsillitis, rheumatism, St. Vitus's dance, certain forms of heart and kidney diseases, and obscure stomach ailments.

EXTENT OF RURAL HEALTH SERVICE IN THE UNITED STATES.

RURAL COMMUNITIES WITH LOCAL HEALTH SERVICE UNDER ADMINISTRATION OF WHOLE-TIME COUNTY OR DISTRICT HEALTH OFFICERS.

According to data obtained by the Rural Sanitation Office of the Public Health Service from the health departments of the States the following (Table I) is a list, by States, of counties (or districts)